

Purdue University
Purdue e-Pubs

LARS Symposia

Laboratory for Applications of Remote Sensing

1-1-1977

Airborne IR Line Scanner Data System at the Canada Centre for Remote Sensing

H. R. Edel

Follow this and additional works at: http://docs.lib.purdue.edu/lars_symp

Edel, H. R., "Airborne IR Line Scanner Data System at the Canada Centre for Remote Sensing" (1977). *LARS Symposia*. Paper 185.
http://docs.lib.purdue.edu/lars_symp/185

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

Reprinted from

Symposium on

Machine Processing of

Remotely Sensed Data

June 21 - 23, 1977

The Laboratory for Applications of
Remote Sensing

Purdue University
West Lafayette
Indiana

IEEE Catalog No.
77CH1218-7 MPRSD

Copyright © 1977 IEEE
The Institute of Electrical and Electronics Engineers, Inc.

Copyright © 2004 IEEE. This material is provided with permission of the IEEE. Such permission of the IEEE does not in any way imply IEEE endorsement of any of the products or services of the Purdue Research Foundation/University. Internal or personal use of this material is permitted. However, permission to reprint/republish this material for advertising or promotional purposes or for creating new collective works for resale or redistribution must be obtained from the IEEE by writing to pubs-permissions@ieee.org.

By choosing to view this document, you agree to all provisions of the copyright laws protecting it.

AIRBORNE IR LINE SCANNER DATA SYSTEM AT THE CANADA CENTRE FOR REMOTE SENSING

H. R. EDEL

Data Processing Division
Canada Centre for Remote Sensing
2464 Sheffield Road
Ottawa, Canada K1A 0E4

The Canada Centre for Remote Sensing (CCRS) has two DAEDALUS analog line scanners in the CCRS aircraft. The spatial resolution is 2.5 milliradians for the 8 to 14 μ meter sensor and 1.7 milliradians for the 3 to 5 μ meter sensor. Each has black body references for quantitative data processing.

The scanner analog video and sync data are recorded on wide band FM Group II amplifiers on a MINCOM tape. The record speed is 30 IPS for 2.5 milliradian resolution and 60 IPS for 1.7 milliradian resolution due to upper cut off frequency of the FM Group II amplifiers.

The hardware data recovery system developed by CCRS provides either Universal Imagery Format digital computer compatible tape or continuous strip colour film with quantitative temperature colour assignments. The scanner analog video data is digitized on an 8 bit analog to digital converter. The digitization of black bodies and video are controlled by the scanner sync track. The film is produced on a CCRS built film recorder.

The video data can be digitized in three modes. First in a constant A/D mode where the sampling frequency is selectable. To remove panoramic distortion two fixed modes of non-linear A/D are provided using a Binary Rate Multiplier control. The 2.5 milliradian resolution data is digitized to 1024 pixels per scan line with a nadir frequency of 120KHz. The 1.7 milliradian resolution data is digitized to 2048 pixels per scan line with a nadir frequency of 240KHz.

The user can process CCTs interactively on-line on a colour video display or colour film products may be provided.

The interactive software includes a cursor area location which uses the black body references to provide quantitative temperature reading together with the area in the cursor.

The most recent interactive software provides a colour density slicing for

displayed images. The temperature slicing is in .5 degree increments with a maximum of 24 increments available. Colour film has provided users with information for land use and moisture content. The system has also been successfully used for determining heat loss from central heating system piping complexes as well as building roof heat loss areas.